Postoperative iris blockade of ostium – A potential complication of pseudophakic trabeculectomy without iridectomy

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BACKGROUND

Some surgeons do not perform a peripheral iridectomy (PI) during trabeculectomy in pseudophakic eyes, because of a minimal perceived risk of pupillary block or iris blocking the ostium.[1] In common with many other glaucoma surgeons, one of us (TE) stopped doing PI in these eyes, over 10 years ago. Two recent cases have prompted us to review our practice.

METHODS Case reports of two pseudophakic patients who had post-operative problems, related to the fact that their trabeculectomy did not include a PI.

CASE REPORTS

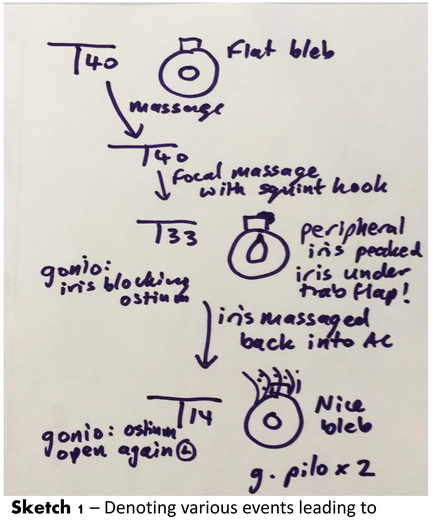
Case 1 A 71- year -old pseudophakic woman had a routine right trabeculectomy with mitomycin C (MMC) for primary open angle glaucoma (POAG). According to our standard practice at the time, peripheral iridotomy was not done because she was pseudophakic. Three years post-operatively, she presented to our eye casualty with sudden right sided headache, blurred vision and nausea. She had no history of trauma or eye rubbing but was going through a period of acute emotional stress. Right eye visual acuity was 6/60. Intra-ocular pressure (IOP) was 50mmHg. Slit lamp examination revealed diffuse microcystic corneal edema, deep anterior chamber and a peaked pupil superiorly. She had a raised diffuse thick-walled bleb with no leak. Gonioscopy revealed iris plugging the internal ostium superiorly while the rest of the angle was open. As this appeared to be an acute blockage of the trabeculectomy ostium, not responding to initial topical Pilocarpine 2%, she underwent urgent iris repositioning under topical and intracameral anaesthesia. A surgical iridectomy could not done in the same sitting as she was in great discomfort.

Following the procedure, the pupil reverted to being round. She was started on topical steroids, antibotics, topical apraclonidine and pilocarpine as well as oral Acetazolamide. Because a surgical iridectomy could not be done, we did a laser peripheral iridotomy in the region of the repositioned iris on the next day. Her IOP thereafter was 3 mm Hg with a patent iridotomy, flat retina and no choroidals. She was advised to continue timolol /dorzolamide drops and topical steroid and has had stable pressures since then.

Case 2 An 88-year-old pseudophakic male with POAG underwent right trabeculectomy. Oral medications included the alpha-blocker Alfuzosin. No PI was done, anterior chamber (AC) maintainer was not used and surgery was uneventful with no evidence of 'intra-operative floppy iris' (IFIS). Post-operative drops included Cyclopentolate 1% for the first week only. At follow-up, the bleb became stuck down, with threatened bleb failure, and both releasable sutures were removed. At the 3 week post-operative check, the bleb did not inflate despite firm digital massage. Therefore, the bleb area was massaged directly using a squint-hook which was pressed onto the sclera, just behind the trabeculectomy flap.

This manoeuvre did eventually allow the bleb to inflate, and IOP came down from 40 to 33 mmHg. However, immediately following massage, it was noted that the pupil was peaked upwards, and a dark mass had appeared under the conjunctiva, at the corner of the trabeculectomy flap (Sketch 1). Closer inspection revealed that the iris had entered the ostium and it was the iris which could be seen under the conjunctiva. Immediately, further careful massage was performed, to 'milk' the iris back into the anterior chamber. This allowed the pupil to return to its round shape again, the bleb to reinflate further, and IOP came down to 14 mmHg. Topical Pilocarpine 2% was instilled. Subsequently, the trabeculectomy settled uneventfully with IOP of 10 mmHg and no recurrence of this 'post-operative floppy iris syndrome'.

No commercial relationships to declare



Sketch 1 – Denoting various events leading to iris prolapse in Case 2

CONCLUSION

Some surgeons have suggested that there is no need to do a surgical iridectomy during trabeculectomy, if the patient is already pseudophakic. We present two cases of post-operative blockage of the trabeculectomy ostium in pseudophakic cases. We have resumed the practice of doing iridectomy for all trabeculectomies.

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DISCUSSION

We report two cases of iris prolapse during the early and late post-operative period of trabeculectomy with MMC without routine PI in pseudophakic patients. We did not expect the iris to block the ostium in pseudophakes, because the AC is usually deep and will always remain so, particularly if we routinely prescribe a cycloplegic for the first week. Although the patients responded well to our treatment for the iris prolapse, we presume that performing PIs could have prevented this complication. Although Case 2 had risk for iris prolapse owing to the use of alpha blockers (a known risk factor for intra-operative floppy iris), Case 1 had no such risk factors except for emotional stress.

To the best of our knowledge there are no reports of stress induced spontaneous iris prolapse. Stress induced IOP rise has been demonstrated in eyes which have undergone filtration surgery in animal studies. This indicates its effect not just on the outflow resistance but also on the rate of aqueous production.[2] Although in Case 1 there is a theory that that stress induced IOP spike may have caused iris prolapse, it also likely that the iris prolapse caused the spike in this case due its acute nature of presentation. There are also few reports regarding iris prolapse due to floppy iris syndrome during trabeculectomy.[3,4] They have reported intraoperative iris prolapse due to IFIS after the sclerostomy stage. Au et al [3] noted that the use of an AC maintainer worsened the billowing of the iris in a patient with oral Doxazocin. Panagis et al [3] reported iris prolapse in a patient with Tamsulosin. Our patient who was on oral Alfluzocin had no iris prolapse during surgery.

We are aware of another case in which the absence of a PI caused problems. In this case, the trainee surgeon had failed to get a full-thickness 'bite' of cornea/limbal tissue with the trabeculectomy punch but was unaware of this because they did not attempt to perform a PI. Had they attempted to do a PI, it would have been immediately apparent that the punch had failed to remove Descemet's membrane. The problem became apparent post-operatively; YAG laser failed to open the ostium, and the patient had to be taken back to theatre.

We suspect that the reason for iris prolapse in Case 2 was the need for firm massage using a squint hook, combined with the use of an alpha-blocker, which made the eye prone to 'post-operative floppy iris syndrome'. We infer that neither patient would have had a problem, had a surgical iridectomy been done at the time of trabeculectomy.

While the low risks of pupillary block in pseudophakic eyes have prompted surgeons to omit performing a PI routinely in these patients,[1] these two cases have prompted us to rethink our practice owing to additional factors such as dynamic nature of the iris and requirement of post-operative bleb manipulation in many patients. We have now resumed doing PI as a routine for all trabeculectomy cases, including pseudophakic patients, and we advise our colleagues to do the same.